

MANGALORE UNIVERSITY
Choice Based Credit System (2019-2020 Onwards)
III Semester – BCOM (Vocational) Detailed Syllabus

Group I Course 6	BCMCAC 232 DBMS Concepts	I.A.: 20
Theory/Week: 4Hrs		Exam: 80
48 hours		Credits: 2

Topic	Book No	Sections
UNIT I		
<u>Database Systems</u>		
Advantages of Using the DBMS Approach	Book-2	1.6(1.6.1-1.6.8)
Data Abstraction	Book-1	
Data Independence	Book-2	1.3.1
Instances and Schemas	Book-1	2.2.2
Data Models	Book-1	1.3.2
Database Languages	Book-1	1.3.3
Database Users and User Interfaces	Book-1	1.4(1.4.1,1.4.2)
Database Administrator(DBA)	Book-1	1.12.2
		1.12.2
Database Architecture(structure of Database systems)	Book-1	1.9
<u>Data Modelling</u>		
E-R Model(Only Definition)	Book-2	3
Entity Types, Entity Sets, Attributes, and Keys		3.3
Entities and Attributes		3.3.1
Entity Types, Entity Sets, Keys		3.3.2
Relationship Types, Relationship Sets, Roles, and Structural Constraints(Relationships only definition)		3.4
	Book-2	
Relationship Types, Sets, and Instances		3.4.1
Relationship Degree, Role Names, and Recursive Relationships		3.4.2
Constraints on Binary Relationship Types		3.4.3
Weak Entity Types	Book-2	3.5
ER Diagrams(only notations of ER diagram)	Book-2	3.7
UNIT II		
Basic structure of Oracle system		
Basic Data types, The create table command,inserting data into table,viewing data in the tables, Filtering table data, Eliminating duplicate rows when using select statement, sorting data in a table,creating a table form a table,inserting data into a table from another table,deleteoperations,updating the contents of a table,modifying the structure of tables,renaming tables, destroyingtables, displaying the table structure.	Book-3 (Chap-7)	114-115 118-131,133
Data Constraints, Types of data constraints,Default value concepts	Book-3 (Chap-8)	138-154,156-157
Computations on table data,Oracle Functions –Aggregate functions	Book-3 (Chap-9)	161-172

Group by clause, subqueries, joining multiple tables (Equi Joins) (Note: Explain with syntax and example)	Book-3 (Chap-10)	
Views :Creating view (Note:Explain with syntax and example)	Book-3 (Chap-11)	192,199-201, 209-210
		266-267
UNIT III		
PL/SQL Basics Introduction, Advantages of PL/SQL, The generic PL/SQL Block,The character set, literal,PL/SQL Data types, variables. Control structure:Conditionalcontrol,IterativeControl,Sequential Control.	Book-3 (Chap-15)	338-342
Procedure and Functions: What are procedure/functions? Parts of Procedure/functions, Advantages of using a procedure /function, Procedure versus functions, Creating stored procedure, Creating a functions.	Book-3 (Chap-18)	344-348 404-407
UNIT IV		
Cursors:What is a cursor?Types of cursors: implicit cursor, implicit cursor attributes,Explicit cursor,Explicit cursor Attributes.	Book-3 (Chap-16)	354-364
Database triggers, use of database triggers, How to apply database triggers, types of triggers, syntax of creating triggers(keywords and parameters).	Book-3 (Chap-18)	429-433
Oracle Packages,Components of an oracle package,use of packages,packagespecification,creating packages.	Book-3 (Chap-18)	413-416
Error handling in PL/SQL:Oracle's Named Exception handlers(only predetermined internal PL/SQL Exceptions)	Book-3 (Chap-17)	393-395
<u>Text Books:</u>		
1)Silberschatz and Korth, Database System Concepts ,6 th Edition,McGraw Hill Publication,2010		
2)Ramez Elmasriand Shamkant B. Navathe, Fundamentals of Database Systems ,7 th Edition, Pearson Education Asia Publication,2016		
3)Ivan Bay Ross, SQL,PL/SQL the Programming Language of Oracle ,4 th Edition,BPB Publication 2009.		

Group I Course 5	BCMCAC 231 Java Programming	I.A.: 20
Theory/Week: 4Hrs		Exam: 80
48 hours		Credits: 2

	UNIT-I	Section	Page No.
	<p>Java Evolution: Java history, Java features (Compiled and interpreted, Platform-independent, Object-oriented, Robust and secure, Distributed, Simple, Small and Familiar, Multithreaded and Interactive, High Performance, Dynamic and Extensible), How Java differs from C and C++, Hardware and Software requirements, Java support systems, Java environment.</p> <p>Overview of Java Language: Introduction, Simple Java Program, More of Java, An application with two classes, Java program structure, Java Tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments.</p> <p>Constants, Variables and Data Types: Introduction, Constants, variables, data types, Declaration of variables, giving values to variables, Scope of variables, Standard default values.</p> <p>Operators: Introduction, Arithmetic, Relational, Logical, Assignment, Increment & decrement, conditional, Bitwise operators, special operators:</p> <p>Expressions: Arithmetic expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, operator precedence and associatively, Mathematical functions.</p>	<p>2.1, 2.2, 2.3, 2.7, 2.8</p> <p>3.1 - 3.7, 3.9 - 3.11</p> <p>4.1 - 4.7, 4.11</p> <p>5.1 - 5.15</p>	<p>10-13,15-16, 19-21</p> <p>23-34,39-44</p> <p>46-53,59</p> <p>62-69</p> <p>69-76</p>
	UNIT-II		
	<p>Decision making and branching: Introduction, Decision making with If statements, simple IF statement, Nesting of IFELSE statements. ELSE.....if.....ladder, the switch statement, the ?: operator.</p> <p>Decision making and Looping: Introduction, The while statement, The Do statement, the For statement, Jumps in Loops, Labeled Loops.</p> <p>Classes objects and methods: Introduction, Defining a Class, Fields Declaration, Methods Declaration, Creating Objects, Accessing Class members, Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance, Overriding Methods, Final variables and Methods, Final classes, Finalizer Methods, Abstract Methods and Classes, Visibility Control.</p> <p>Arrays, Strings and Vectors-Arrays: One - Dimensional Arrays, Creating an Array, Two Dimensional Arrays, Strings, Vectors, Wrapper Classes.</p>	<p>6.1- 6.8 (Flow chart excluded)</p> <p>7.1, 7.2, 7.3, 7.4, (Enhanced for loop excluded), 7.5, 7.6</p> <p>8.1 - 8.16 8.18</p> <p>9.1 - 9.7</p>	<p>81-99</p> <p>107-116 ,119-122</p> <p>127-144, 147-149</p> <p>153-169</p>

UNIT-III

Interfaces: Multiple Inheritance: Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.	10.1-10.5	180-186
Packages: putting classes together: Introduction, Java, API Packages, Using System Packages, Naming Conventions, Creating Packages, accessing a Package, using a Package, adding a class to a Package, Hiding classes.	11.1 - 11.9	190-199

UNIT-IV

Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.	12.1-12.10	203-225
Managing Errors and Exceptions: Introduction, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, Using Finally Statement, throwing our own Exceptions, Using Exceptions for Debugging	13.1-13.7 13.9	234-245, 247

Text Books: 1. E Balaguruswamy, Programming with Java A primer, 5th edition, Tata McGraw Hill Publishing Company Limited, 2017.

Reference Books: 1. Yashavant Kanetkar, Let us JAVA, 3rd Edition, BPB, 2017. 2. Herbert Schildt, The Complete Reference Java, Ninth edition, McGraw Hill Education, 2017.

Group I Practical 3	BCMCAP233 Java and DBMS Lab	I.A.: 10
Theory/Week: 3 Hours		Exam: 40
36 Hours		Credit: 1

Part A

Java Programming

- 1) Write a Java program to create 4 students with data members name and marks. The main must print the names and marks of each student and also the total of marks using class.
- 2) Write a program to find reverse of input number.
- 3) Create a class which includes the contents of the classes. Student, marks, result and interface sports (Program of multiple inheritances by using interface).
- 4) Write a program using threads to display Multiplication table for 5, 6 and 7.
- 5) Write a program to count total number of valid and invalid numbers entered through command line. (Using exceptions concept)

Part B

SQL Queries

- 1) Create a table EMPLOYEE using SQL command, emp(empno, ename, desg, dept, gender, salary). Specify primary key and NOT NULL constraints and allow 'M' or 'F' for gender.

Write the following SQL Queries:

- a) Display all the information about all employees.
- b) Display empno, ename and desg of all employees.
- c) Display the details of all female employees.
- d) List empno, ename and desg of all employees whose salary more than 5000.
- e) Display the names of employees who gets the maximum salary.
- f) Display the number of employees in marketing and sales.

- 2) Create table STUDENT using SQL command to store

Column Name	Data Type	Size
rno	Varchar2	6
Name	Char	15
Class	Varchar2	8
Marks1	Varchar2	3
Marks2	Number	3
Marks3	Varchar2	3

Write the following SQL queries:

- a. Display the structure of the table STUDENT.

- b. Add new column TOTAL and update the contents of TOTAL column of STUDENT table.
- c. Display the students details whose TOTAL is between 70 to 90.
- d. Display the names of students whose name ends with 'th'.
- e. Delete all the records of the STUDENT table.

3) Create a table BOOK using SQL command to store

Column_Name	Data Type	Size
BOOKCODE	Varchar2	10
TITLE	Varchar2	20
PUBLISHER	Varchar2	15
CATEGORY	Varchar2	10
YEAR	Number	04
PRICE	Number	8,2

Write the following SQL queries:

- a) List the details of the books whose publisher's name start with 'M'.
- b) List the details of publishers having 'A' as the second character in their names.
- c) Find the books published in 2010, 2011, 2012.
- d) Display the BOOKCODE, TITLE, PUBLISHER of all books in the descending order of YEAR.
- e) Display the details of all books other than **MICROSOFT PRESS** publishers.

4) Create the following tables by identifying primary and foreign keys, Specify the not null property for the mandatory keys.

SUPPLIERS(Supplierno, Sname, Saddress, Scity)

COMPUTERITEMS(Itemno, Suppliersno, Itemname, quantity)

Write the following SQL statements:

- a. List item and supplier details.
- b. List the names of the suppliers who are supplying **keyboard**.
- c. Display the items supplied by **Microtech**.
- d. List the items supplied by the suppliers **cats** and **electrotech**

PART-C

PL/SQL

- 1) Write a PL/SQL program to process a bank transaction whenever a request for withdrawal issued, a check is made if there is sufficient fund in the account. If the fund is not available print the message fund not available.
- 2) Write a PL/SQL program to compute DA, HRA, Tax and net pay of employees which contains the following columns. empno, empname, basicpay, DA, HRA, TAX, NET PAY. Given HRA is 10% of basicpay, DA is 12% of basicpay, Tax is 10% of basicpay. Using Open, fetch and close statements.
- 3) Write a PL/SQL program to find factorial of a given number using function.
- 4) Consider a table ITEM that includes ITEM_NO, NAME and RATE. Another table ITEM_TRANS include ITEMNO, NAME, RATE, OPERATION and DATE. Create a trigger that does the following.
- i) When a new record is inserted to item table, record to be inserted to item_trans with operation 'I'
- ii) When a new record is deleted from item table, record to be inserted to item_tran with operation 'D'.

Scheme of Examination

Sl.No	Details	Marks
1	Part A-Java Program writing-7 marks Execution -3marks	10
2	Part B-SQL Queries (Table creation-2marks insertion-2 marks 3 Queries -2 marks each	10
3	Part C-PL/SQL Table creation-2 marks Program writing-6 marks Execution-2 marks	10
4	Class Records	5
5	Viva-Voce	5
Total Marks		40